Arbor and Wild Life Day

March 1947

BULLETIN TO THE SCHOOLS

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THE UNIVERSITY OF THE STATE OF NEW YORK

Contents

	PAGE
Bird, Arbor and Wild Life Days, *Francis T. Spaulding*	197
Arbor Day in the Schools, *Mabel H. James*	198
Conservation — Our Number One Task, *Edna Hewes McMurtry*	200
Problem in Black and White, *George Miksch Sutton*	203
Poem — Woods in Spring, *Ada M. Fitts*	207
Let's Go to School in the Woods, *John K. Terres*	208
Conservation of Wild Flowers, *Hester M. Rusk*	212
Woodland Recollections, *G. H. Bainbridge*	216
A Carolina Wren in the Catskills, *Olive A. MacLaury*	218
A Dutch Colonial Garden, *John J. Vrooman*	220
Guides to the Out-of-Doors, *Dorothy A. Treat*	223
Hawks Aloft, *Maurice Broun*	226
Requirements of a Bird Sanctuary, *Mrs Edward H. Hickman*	228
Forestry in Action, *E. W. Littlefield*	230
The Sumacs of New York State, *William M. Harlow*	234

COVER PICTURE: Baltimore Orioles at Nest

From the painting by George Miksch Sutton, courtesy of Miss Malvina Trussell

THE UNIVERSITY OF THE STATE OF NEW YORK
BULLETIN TO THE SCHOOLS

Issued monthly during the school year by the State Education Department

CHARLES F. PROBES, *Editor* MILDRED HAND, *Assistant*

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The University of the State of New York

Bulletin to the Schools

VOLUME 33 MARCH 1947 NUMBER 7

Bird, Arbor and Wild Life Days

LITTLE THINGS*

James Stephens

Little things that run and quail
And die in silence and despair;

Little things that fight and fail
And fall on earth and sea and air;

All trapped and frightened little things,
The mouse, the coney, hear our prayer:

As we forgive those done to us,
The lamb, the linnet and the hare,

Forgive us all our trespasses,
Little creatures everywhere.

By virtue of my office as Commissioner of Education, and in accordance with law, it is my duty and pleasure to designate April 18 as Bird Day, and April 25, May 2 or May 9, as best suits the convenience of each locality, as Arbor and Wild Life Day.

Francis T. Spaulding

Commissioner of Education

*From the Collected Poems of James Stephens, copyrighted by The Macmillan Co.

Arbor Day in the Schools

MABEL H. JAMES

Secretary, Conservation Forum of Buffalo and Western New York

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School children of New York State can make conservation history

ON THIS 75TH anniversary of the establishment of Arbor Day it is fitting that we make unprecedented celebration of its institution. Let this year mark a return to the kind of observance which in 1872 occasioned the planting of a million trees in Nebraska alone. Let fitting tribute be paid in city, town and country to the value of trees in our lives, as well as to the vision and patriotism of the founder of Arbor Day, J. Sterling Morton.

The pupils of New York State schools constitute a mighty army of potential conservationists, if mobilized for constructive effort, to hold the line against waste and destruction. Through a united effort for the planting and safeguarding of trees and forests, they can make history.

Let it be urged upon every community that a five-year, ten-year or 25-year plan for improvement and extension of its forest, park and roadside resources be drawn up, and let Arbor Day be, if possible, the occasion for ground breaking in the initial planting of trees.

Incomplete plans, making public presentation of the full project inadvisable, need, however, deter no school from effective Arbor Day activity. The time-honored custom of planting an ornamental tree by school or grade or room is always possible. If the campus is already fully planted, a hospital, park, railroad station or square may be in need of planting. Full agreement as to responsibility for care must in each case be reached. Establishment of a children's grove or park or forest to which additions can be made on succeeding Arbor Days is a plan that has brought excellent results.

Many schools have areas capable of being developed as small tree nurseries. If there is a horticulturist or garden hobbyist on the faculty or among the parents, this can prove a particularly rewarding project. The nursery may include seed beds where forest seedlings can be raised (from seeds possibly collected by pupils), or it may simply comprise rows of small evergreens and other ornamentals purchased from a reliable nursery. It is surprising how reasonably three and four times transplanted stock can be purchased, usually guaranteed as to replacement if they do not become established the first summer.

A school that has a small greenhouse or a room adaptable to such work may grow woody material of great variety from cuttings; indeed many gardeners do this without resort to a greenhouse. Is there a possibility for instruction in this work, either in the regular or in the adult classes of the school? If so, there should be available for future years a wealth of material, not only for the school but for distribution to others.

For observance of Arbor and Wild Life Day many suggestions were given in the March 1946 BULLETIN TO THE SCHOOLS, which stresses the objective of a continuing program throughout the year, the day itself serving to focus attention on the work in conservation and nature study that is contributing to better future citizenship.

In the Junior Conservation Contests sponsored during the past four years by the Conservation Forum of Buffalo and

Western New York valuable reports and exhibits have been submitted by teachers and club leaders. Among them are: an account of establishment and maintenance of a school forest and park; many accounts of adventures in bird study and attraction, usually provided by Junior Audubon Clubs — an unexcelled means of interesting youth in wildlife; vacant lot clean-up; year-long study of outdoor environment through field trips supplemented by varied indoor activities with materials collected in forest and field; campus and school ground beautification by several groups; a survey of the street trees of a village; a study of naturalists whose names appeared as street names in the community; visits to a county forest where pupils received instruction from the forester; the labeling of a nature trail.

Exhibits accompanying the reports, including elaborate apartment houses for martins, simpler birdhouses and feeding stations, tin can camp cookery equipment, charts and photographs, garden plans, sanded samples of native woods, and plaques displaying wild flowers needing special protection, have each year formed the nucleus of a month-long conservation exhibit in the Buffalo Museum of Science, together with prize-winning conservation posters. Such an exhibit on a smaller scale can well be sponsored by a school or grade. Local, state and national bureaus and organizations readily respond to requests for aid with additional material of interest.

Arbor Day exercises indoors may be planned and executed by the pupils with song and verse, brief essays, exhibits, games based on knowledge of birds, wildlife and trees, and perhaps a skit or one-act play.

The interest of older pupils may be intrigued by consideration on Arbor Day of such topics as man's utter dependence on the work of the green plant, the balance of nature (of which we have yet so much to learn), the yet unsolved problem of engineering by which great quantities of water are lifted to the tops of tall trees for transpiration; wildlife management and research, the New York State Forest Preserve, the national Forests and Parks, or perhaps plant hybridization. If an outside speaker is wanted, possibilities lie in members of the local planning board, forestry or soil conservation district, college faculty, garden club, Audubon club, or other group with special interest in natural resources. Perhaps a tree expert, park superintendent or nurseryman would discuss trees suitable for the locality, or a leader in victory gardening would speak on the continuing importance of that activity; a game warden can speak on local wildlife, or any naturalist can give of his special fund of knowledge. Movies of interest, both silent and sound, are available from the State Conservation Department, the State College of Forestry at Syracuse, the Soil Conservation Service at Upper Darby, Pennsylvania, the National Audubon Society and from many other sources.

Another plan for the day is adventuring in appreciation of the outdoors. If a local horticulturist or naturalist accompanies the group, the field trip may well be a pleasant adventure in learning for teachers as well as pupils. A park or forest, a farm on which soil conservation is practised, a backyard bird sanctuary or a city zoo may be visited.

Let us suitably observe Arbor and Wild Life Day, 1947, with planting, with indoor programs of interest, and with field trips, but let us not fail, above all, to set our shoulder to the great task of safeguarding and adequately extending the forest resources which through the years we have permitted to dwindle, for "It is later than you think." And be assured that a worth-while effort in beautification or reforestation is almost certain to enlist aid from unexpected sources and to attain success beyond the original hope. Enthusiastic reports leave no doubt that this phase of education is winning its way.

To our possible achievement there is no limit. *Let's go!*

Conservation – Our Number One Task

EDNA HEWES McMURTRY
Wellsville High School

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Not only education but understanding of the great out-of-doors is needed to conserve our natural heritage

TODAY, MORE THAN ever before, the conservation of our natural resources is recognized as a definite need. Sportsmen, sports editors, service clubs, farm bureaus, 4-H clubs, and many other similar organizations join the schools in an all-out program to conserve those things which help so much to make this a truly great land.

This is indeed as it should be, for what man-made product can boast of its beginning five hundred years before Columbus came to this hemisphere? This, in brief, is the story of the start of our forest industry: going back to the year 1000 when Leif the Lucky, son of Red Eric, having found a land "not mountainous, well-wooded with some small knolls upon it," "chopped down trees, built houses and explored." Later some of his party returned home to Greenland taking from the American forests its first exports, a cargo of logs.

What a genuine thrill the American forests must have given those hearty seafaring men who came from Iceland which was bare of trees, or Greenland, where the variety and supply of lumber was very limited! I often look with awe at the huge butter bowl in my attic — made, of course, many hundreds of years later, but nevertheless cut from a tree that had a knot or burl large enough to carve this curly maple bowl 27 inches across. Those forests must have been magnificent!

As we have said, the need of conservation is established, but our task is only begun. It is our children and their children to come, who will determine the fu-

Photograph by Genevieve E. Smith

Hepatica, a Flower To Be Protected

ture of those things which we have inherited. It is therefore our duty through education and understanding of the great out-of-doors, to help bring this to pass. Several things come to my mind as paramount:

Children, and adults as well, must know a wild creature as a friend before they can really respect a law concerning it for laws passed without understanding are useless. Who will sincerely respect a wild flower law or bird protection law if he has never seen the waxy beauty of the flower or gazed in wonder at the flight of a hawk in the heavens? This we must teach.

Knowledge of the things of nature, whether birds, trees or flowers brings enthusiasm, never contempt.

The children are our greatest means of safeguarding this wealth.

Who, then, will undertake this problem? The overcrowded day of the grade schools seems to bulge from its many duties. I feel this should be a joint responsibility among schools, Girl Scouts, Boy Scouts, Cubs and similar groups. It does not require that we teach more, but teach with more sincerity of purpose, and willingness, if need be, to learn with the pupils. Each adult, whether teacher or scout leader, should accept this responsibility and do his or her job well.

One might also ask, "*How* should we teach conservation?" At this time of year Arbor Day affords a fine opportunity to reaffirm our belief and plant a tree. This is in itself a deed well done, a living memorial; but too many times it becomes a mere lip service, and when the last bit of earth is placed around the roots of a tree, we brush the dirt from our hands and think, "There, that is done for another year!"

Conservation, like the things it aims to preserve, must be a living subject. Instead of a one-day sort of memoriam, let us make it a year-round job, to look and learn. Let's get the children off the sidewalks, if it is only to a near-by park, or the school campus.

Photograph by C. E. Simmons

Field Trips Have Their Rewards

In the past twenty years, besides bringing up four children of my own, I have worked with children of all ages, Cub Scouts, Girl Scouts, grade children and high school pupils. Each is eager to know of the out-of-doors and welcomes the chance to go out. The most receptive, perhaps, are around sixth grade, for they are still curious about things and retain very easily the names and descriptions of their findings.

The mention of a field trip is a horror to some people, but it need not be. These few simple rules will insure ease and success for the trip.

Each trip must have a *purpose* in mind — to study the big willow by the river, or watch the robin building under the bridge, or look for tracks in the mud. Such a purpose holds the class together. If the group is large, it can be divided, but always to reunite at an appointed place.

The purpose is really only an excuse to get out. The big thing is to train the eyes to see and the ears to hear and to aid in gathering material which can be subject to later study. Remember the commandment of the trail: "Everything belongs to somebody, respect all public and private property." Still, there are always leaves, insects and other things on the ground that are ours for the taking.

Never be afraid to say, "I don't know" — but the wise leader will add, "Let's look it up." Nature is full of surprises, so be thrilled, instead of ashamed to find an unidentified tree, flower or plant.

Let each child keep a record of the trip, no matter how simple, with the date, the locality, and the weather conditions. This binds the project together, and the trip will long be remembered.

Yes, teaching conservation today is a number one task to be carried on throughout the year. To survive the years ahead, we must have the respect of our fellow men. How can we hope to have this if we do not teach our children respect for lesser things of life that God has entrusted to our care? Let us face the facts squarely, and accept this responsibility so that our grandchildren may have and enjoy the same natural resources and the privileges we have had.

My Nature Creed

I believe in the out-of-doors as my garden; the wild flowers of the field, trees of the wood, the mosses and flowerless plants of the by-ways are for me to enjoy.

I believe in the music of the birds, and the strength which comes from the hills in the silence of the night.

I believe the beauty of the world is in the eyes and ears of the beholder; the dainty cut fern, the clear full song of the wood thrush are one, since each is a form of beauty.

I believe God is ever near man, as I can hear Him in the call of the chickadee, and see His handiwork in the colors of the mountainside.

I believe, to be happy and free, we must respect all life, that those things which are our heritage may be enjoyed by our children.

Lastly, I believe — since this is my creed — that it is my duty to teach, especially the children, that they may learn as they follow the long brown path to find the peace and contentment which others of Great Faith have found.

EDNA HEWES MCMURTRY

Problem in Black and White

GEORGE MIKSCH SUTTON

Museum of Zoology, University of Michigan

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An ornithologist tells how to help a friend and influence a skunk

THE PROFESSIONAL ornithologist and his activities are not always fully understood. He is known to be an observer, if not a student, of birds. He is alleged to rise at an unconscionably early hour; to carry a cumbersome binocular about his neck, a notebook in one hand, a pencil in the other; to be antisocial, wild-eyed, and long-haired when young — bald, whiskery and queer when old.

Cartoons of the professional ornithologist sometimes show him with an insect net in his hand. His friends are wont to call him a "bug-catcher." Children bring him bones of cows and horses found in old pastures, turtle carapaces and snake eggs, and bottles containing cocoons, caterpillars, spiders, hawk moths, praying mantises, bats and salamanders. Newspaper editors ask him to explain in detail the extermination of the wild pigeon and to comment on Indian remains found in caves. Ladies' clubs ask him to lecture on such subjects as "Our Feathered Friends in American Literature." The professional ornithologist is, in short, supposed to be informed on all matters pertaining to the out-of-doors world. His standing as an authority on natural history, however enviable it may be most of the time, occasionally places him in an awkward position.

I

The moment I heard Brad's voice over the telephone that Friday morning in October I knew something was wrong in the Bradley household. I was on the Cornell faculty in those days, and was lucky enough to be living with the Fuertes family in their house on Thurston avenue.

"Say, George, how busy are you today, anyway?"

Before I had had opportunity to answer in detail this all but leading question, my friend went on: "You see, George, there's a skunk in that cellar window at the southeast corner of the house. It's been in there six days now. We made a ladder for it to come out on, but it won't come out. It'll starve in there if we don't get it out pretty soon. The maid's been trying to let food down to it on a string, but she's frightened and won't go near it now. We knew you were interested in birds, and were sure you'd know how to get it out!"

Interested in birds indeed! I hesitated. This was no time for rash promises. I had encountered skunks before.

"How long did you say it's been in there?" I was trying to recall what sort of place the cellar window was.

"Six days at least, maybe more."

I couldn't help chuckling. To think that my good friend Bradley, astute, intelligent man that he was, had made the time-worn blunder of supposing that a professional ornithologist was also a vermin exterminator. Vermin exterminator, skunk remover, professional skunk remover! The longer I pondered, the more the idea intrigued and challenged me. After all, why shouldn't a thoroughgoing bird expert be a skunk expert as well?

"Sure, I'll try," I said. "But I make no promises. If you shoot a skunk he's apt to stink up the whole place. I guess the best thing is to try to get it out alive."

"Fine," answered Brad warmly. "If you get that skunk out of there, your reputation's made in the Bradley household."

II

I was consoled, during the interim following my conversation with my friend Bradley, by two memories. The first of these was of a mother skunk and her five babies which I had watched for an hour on a moonlit West Virginia hillside. How beautiful, how truly and how rarely beautiful those little skunks had been! Playful, irresponsible, full of energy, they had romped about their mother as she had turned over small, flat stones, hunting grubs and beetles for them. They had passed but a yard or so from me in their foraging. The kittens did not know enough to recognize in me an ancient foe; but the wise old mother, she who had learned much about the ways of human kind, she who knew perfectly well that I was there, had not once snarled, nor stamped her feet, nor pointed her terrible posterior in my direction. She had *known* that I was the right sort.

Photograph by William T. Shaw

"They're peaceable animals at heart."

The other memory was of a statement made to me, years before, by my beloved teacher, Louis Fuertes, the world-famous painter of birds. Fuertes had said, in all seriousness: "Skunks don't go around looking for trouble. They're peaceable animals at heart. I've often thought that if a man could be gentle enough and friendly and patient enough, he might even stroke a wild skunk with his hand without making the animal angry."

Luncheon on the campus over, I hurried to my rooms, wondering as I walked just how I would introduce myself to the Bradley skunk; how I would go about getting the animal out of its below-the-ground prison; what I would wear for the occasion.

Part of my plan already was formulated. Since it was Friday, I would get from Bridget, Mrs Fuertes' cook, a small piece of fish. All skunks like fish. With a small piece of fish in my hand and gentle words on my tongue I would prove to the Bradley skunk that I meant no harm.

I now faced the problem of dressing. As I took off my business suit I marveled that I could not think of any really worthless garments in my wardrobe. There were the old gray trousers, of course; they were patched on the seat and tattered

along the cuffs, and thin at the knees; but they were wholly admirable for a walk through the open woods. There were the tough togs I would be needing in a day or so for partridge shooting. Such garments as these were far too good to be thrown away. I found a brown shirt that would do, for the collar never had been right. I decided I had better wear a hat — perhaps with a handkerchief under it. Reluctantly I drew on the old gray trousers. Ready for the fray at last, I walked slowly, soberly, downstairs. It was a little as if I were bidding farewell to a bright world which I would see no more.

III

Walking cautiously around to the southeast corner of the Bradley house, I located the neat, deep window-hole into which the animal had fallen. At first I could not see the skunk, and wondered if perhaps it had managed to get out. Then I saw the unmistakable black and white tip of its tail. The skunk was crouched in a dark corner, its body almost hidden by a broad plank. This plank, thickly studded with big nails, was the "ladder" up which it had refused to climb. It was a big skunk, a full grown one obviously. It moved a little, lifting its head inquiringly, when I spoke to it.

Finding the door of the house open, I walked in, went to the basement and, making my way to the proper window, peered through the pane at the unfortunate beast. When it saw me it swung about, threw up its plumelike tail and stamped its front feet. This was not good. I backed off quickly. The plume of tail came grandly down. Again I approached the window, talking in a quiet voice. This time the skunk sniffed the air, bared its sharp white teeth, but did not turn about nor stamp its foot. Thank heaven, it was reasonable!

I examined the window. Hinged at the top, it opened inward. I had no difficulty opening it, though the grating sound caused the skunk to fling high its tail, whirl quickly and thump a foot loudly.

It was my turn, now, to sniff the air. No, the smoke of battle was not rising.

Examining the window and its surroundings once more, I noted to one side, not far from the sill, a pile of lumber about four feet high.

What I needed now was a box of some sort in which to catch the skunk. The animal could not be frightened nor driven up out of the pit, that was plain, for presumably it had done its best to get out during the several days and nights of its imprisonment. Getting it into a bag or lifting it out on any sort of elevator appeared to be impracticable. Shooing it into the cellar in the hope of driving it up the stairs and out would seriously imperil the household. No, that skunk would have to be lured into a box, the box quietly and securely closed, and box and skunk carried some distance from the house before the animal could be released. Whatever was done would have to be done in an unhurried, dignified manner. There would be no pounding and shouting. Skunks did not like warlike noises of any sort.

Finally I found exactly what I needed: a clean, empty, galvanized iron ash can about three feet high and possibly 15 inches in diameter. Returning with this, I felt that all would be well once I had the skunk inside with the lid down tight.

Several minutes passed before I offered any fish to the skunk. I wanted to be sure that the animal was thoroughly familiar with me. As I lifted the window inch by inch, the skunk's moist-looking, sharply pointed nose moved questioningly up and down and from side to side. Already it knew that there was something good to eat close by. The odor of my person and sound of my voice did not alarm it greatly now. Taking a flake of fish in my right hand I held it toward the hungry animal.

There was the sudden roar of an automobile's passing. The skunk tossed up its tail, lifted both its front feet, turned round twice. Quite plainly it was annoyed, nervous, out of sorts. But first of all it was hungry. Its mouth was watering, by this time, for that fish!

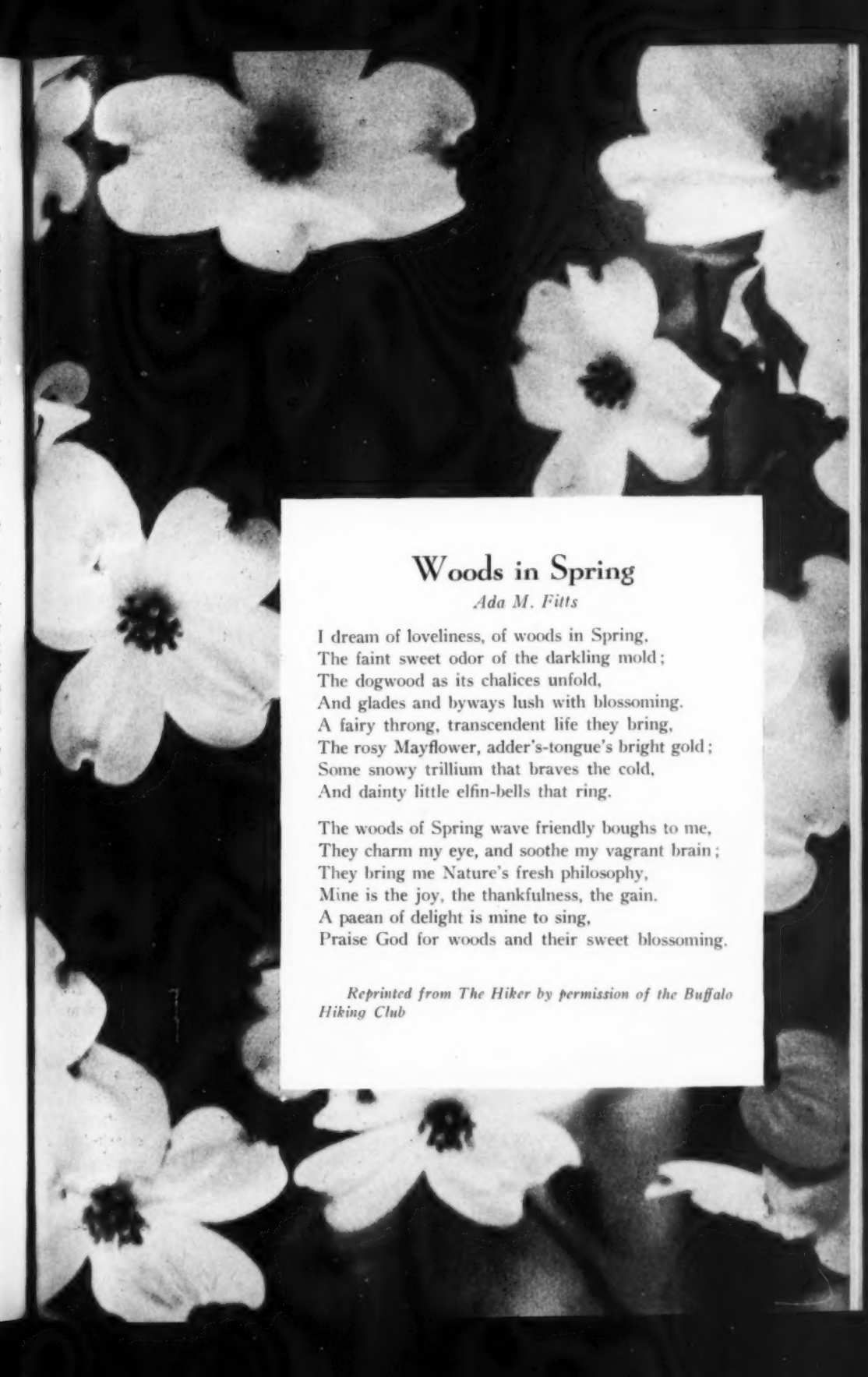
I did not expect the skunk to eat directly from my hand. I dropped the bit of fish several inches from its wriggling nose. A moment passed and the skunk stretched forth its head, snatched up the morsel, crunched greedily, swallowed, and sniffed about for more. I gave it another flake. This time it crept boldly from its retreat, paying little attention to me. Within ten minutes it was darting this way and that, quite recklessly, gobbling up bits of fish.

Now I propped the window open with a stick, lifted the ash can horizontally, placed the lower rim flush with the sill, and set a chunk of fish a few inches inside the can. When the skunk put its front feet in the can and took this new lure, the warm glow of triumph spread through me. The day was practically won!

Alas, I had not yet got my skunk. Even as I stood there wondering where I would release the animal once I had got it safely out of the house, I heard an unexpected sound — the scratching of sharp, strong claws on metal. The wily skunk, glimpsing the lumber pile for the first time, was worming its way *between* the can and the windowsill. I endeavored to dissuade it, but my tactics were so discreet they were to no avail. To my complete dismay, I watched the animal leap for the lumber pile, frisk across the boards, jump to the floor and dart to a remote corner of the cellar.

What was I to do now? Not much of the precious fish remained. If the skunk became familiar with new places of refuge there would be no way of managing it. Dumbfounded, I was about to take the prop from the window and begin a new campaign when lo! there was the roar of another automobile and the loud blare of a horn. At this the skunk popped into view again, dashed frantically along the wall opposite from me, and, retracing its course with incredible accuracy, made straight for the lumber pile, scrambled up over the boards and leaped back to its retreat under the plank in the window-hole! Breathing a sigh of relief, I let the window gently down.

So now we could start all over again. The skunk was bolder than before. Twice it took bits of fish directly from my hand. Once it licked the tip of my finger. I took care to hold the can in such a way as to prevent the skunk from jumping again to the lumber pile. I placed some fish inside the can, 13 or 14 inches back from the rim. To my delight the skunk went after this new lure savagely. Its claws rattled on the metal as it nosed about for more. I knew it was well inside the can by this time. Only the tip of its tail was visible now. Slowly, and as calmly as I could under the circumstances, I let the can down to its normal standing position. The skunk slid noisily to the bottom. There was a loud scratching of claws. Breathless, I waited, fearful that the worst had happened. All was still. I did not even hear the stamping of a foot. I tossed in a bit of fish — the last morsel. The skunk grabbed, chewed noisily, swallowed, looked up amiably for more. The pretty creature was my captive and my friend at last.



Woods in Spring

Ada M. Fitts

I dream of loveliness, of woods in Spring,
The faint sweet odor of the darkling mold;
The dogwood as its chalices unfold,
And glades and byways lush with blossoming.
A fairy throng, transcendent life they bring,
The rosy Mayflower, adder's-tongue's bright gold;
Some snowy trillium that braves the cold,
And dainty little elfin-bells that ring.

The woods of Spring wave friendly boughs to me,
They charm my eye, and soothe my vagrant brain;
They bring me Nature's fresh philosophy,
Mine is the joy, the thankfulness, the gain.
A paean of delight is mine to sing,
Praise God for woods and their sweet blossoming.

Reprinted from The Hiker by permission of the Buffalo Hiking Club

Let's Go to School in the Woods

JOHN K. TERRES
Formerly Field Biologist, Soil Conservation Service

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WHEN I WAS A BOY, there wasn't anything that I'd rather own than a certain New Jersey woodland. On my way to the frozen muskrat marsh and the trapline, I passed every morning through a dense, shadowy grove of red cedars and scrub pines where each winter there lived a colony of 25 or 30 long-eared owls. When I was still a little fellow, I curiously opened some of the furry pellets, lying thickly on the ground under the trees, which the owls cast up after feeding. To my astonishment, I found they contained the skulls and bones of meadow mice! I had been told by local hunters that owls are destructive and eat only chickens, quail, rabbits and small birds, but at ten years of age, I knew differently. Although I did not realize it, I had made my first scientific discovery.

Had I possessed a fortune, I would gladly have paid it for that lovely green grove and the sleepy-eyed owls that roosted there each winter day. But I was a poor boy, and the grove has been cut down these many years. With the trees gone, the owls no longer come there to roost and a bright spot in my boyhood has passed forever.

Maybe you youngsters or some of you grown-ups have a treasured bit of woodland that you would like to preserve as a home for the birds and other wild creatures. You *can* own a forest and one of the easiest ways to do it is to own your forest cooperatively. With the combined efforts of school children, their parents and the entire community, there is no reason why every school, including city schools, should not have its own forest.

This story of a school forest shows what can be done in your own community

At Iron Mountain, Michigan, the Felch Township School has one of the most successful school forests in the United States. Its gradually acquired 320-acre woodland is five miles from the school, to which the classes travel by school bus. Pupils built a shelter house in a grove of cool, green pines beside an unimproved logging road. They control blister rust, which destroys white pines, by uprooting the alternate host plants — wild currant and gooseberry. They have planted 90,000 trees on the land and constructed fire lanes around the tract.

Each teacher in all 12 grades must teach at least one class a year in the school forest. Art classes sketch landscapes and individual trees. Music classes assemble under the pines, where they listen to the sighing wind in the evergreens, and then discuss what kind of musical theme a composer would use to illustrate the "singing of the pines." In mathematics classes, both boys and girls survey and map the school forest, compute land areas to be planted with trees, and perform other practical lessons in arithmetic. The bookkeeping classes are custodians of the forest expenses and income. Science classes make a periodical census of songbirds and game, and collect insects, plants, snakes, rocks and soils for indoor study.

In a narrow gorge of the Sturgeon river, on the site of an old log splash-dam, they plan to build a new dam flooding 160 acres of cut-over land. Timber and

Courtesy of U. S. Forest Service

School Children Plant Red Pine in an Old Field

stones for the dam will come from the school forest. The dam will create a lake a mile long which will be stocked with sunfish and bass. Waterfowl nesting islands will be built in the lake, for it is to be a refuge for ducks, geese, loons, grebes and other water birds. Under the guidance of the Michigan Conservation Department, the boys and girls will plant pondweeds, wild celery and other wild duck food plants to increase the waterfowl food supply.

But Felch Township did not always have a successful school forest. It started slowly and modestly back in 1929 as a small 4-H Club project under the leadership of E. M. Blomquist, the kindly and enthusiastic superintendent of Felch School. With the savings of school children and from school funds, two 40-acre adjacent tracts of cut-over timber land were bought. The boys, who had banded together as a forestry club, started planting trees in 1930. By 1933, the club had functioned so successfully that two more 40-acre tracts of land were purchased.

The club built its cabin that year of pine logs cut from its own forest land, part of which still had some fine standing timber. The cabin serves as a general headquarters for year-round recreation and work projects in the school forest.

"Old Glory must always fly when the cabin is being used or when we are working in the forest," says Superintendent Blomquist. "Both students and teachers find something unusually inspiring in seeing our American flag flying overhead as we bend to plant trees, or make improvement cuttings in the woods. It gives us the feeling that we are not only helping ourselves, but doing something for all of America!"

In 1940, the school district bought three more 40-acre cut-over tracts for about $2 an acre, adjacent to the school forest and along both banks of the Sturgeon river, where a dam will create a large lake. Not only will the lake be a waterfowl refuge; it will be used by the boys and girls for swimming, fishing and boating in summer, and for ice-skating in winter. In 1945, the school added another adjacent 40-acre tract, making a total of 320 acres.

Has the forest paid its way? From 1936 to 1942, Mr Blomquist says the school reaped $1500 from mature trees that needed cutting, and from inferior trees cut to improve the growth of the forest. Besides the money, enough timber was cut that pupils made their own chairs, tables, book shelves, cabinets and other lumber needs for the school forest cabin.

What about the success of those 90,000 trees planted by the school children from 1930 to 1945? "More than 90 per cent of them are still living and growing into a valuable evergreen forest," says Mr Blomquist. "The foot-high pines planted in 1930 are now about 16 feet tall. This gives you an idea how easy it is to put cut-over timber lands back to work and how rapidly the trees repay us with their growth. Our largest planting was made in 1938, when our forestry club of 40 boys planted 12,000 trees in two days!"

Ira Bull, Michigan State Forester, thinks the Felch School Forest is the finest in Michigan and possibly the best in the country because learning has been combined with recreation and a forestry and a wildlife conservation program.

How do pupils feel about what they get from their school forest? A boy in the junior class of Felch High School says: "You really get acquainted with your teachers when you work and play together in the school forest. Why, teachers even look and act differently when they're dressed for field trips or tree planting!"

Another boy says: "Field trips to our school forest make science courses more interesting! We learn to identify trees, shrubs and wild flowers; to be cautious with fire; to avoid injuring trees; and that a living mouse, squirrel or bird is a whole lot more interesting than a stuffed one."

A girl believes that everyone gets better acquainted and that self-discipline and

Courtesy of National Audubon Society

Deer Mice Feed on Destructive Insects

self-reliance are immeasurably increased. Another points out that they learn to look ahead and plan adequate transportation and food requirements for their field trips and social events at the school forest cabin.

The school forest is also a "nature laboratory" for the wildlife study projects of Junior Audubon Society Clubs, Boy and Girl Scouts and other school and community organizations. In the Felch School Forest, children learn that trees must be protected from fire, livestock grazing, diseases and insects, that management by "thinning" (cutting inferior trees for fuel and pulpwood) speeds the growth of the remaining "crop trees" that will some day provide lumber.

They learn that a forest is a community of living things, and that wildlife, so essential to the well-being of any forest, can be greatly encouraged by "managing" the woodland. And the children also learn that in a woodland, just as in a bank, one must take less than the annual growth (interest) if the capital is to grow larger and larger. Perhaps best of all, they acquire a sense of ownership and so come to respect the property of others.

How big does a school forest have to be? Many of them start with only one to 20 acres of forested, cut-over, or open, abandoned farm land. Even a few acres should not be rejected for a beginning. Idle or unsightly land has been bought for as little as $2 to $10 an acre; some school forests are gifts from public-spirited individuals or associations; others are created from tax delinquent or tax-reverted lands. No matter how small your original school forest may be, you must remember that it is only a beginning from which it may expand to become as successful as the Felch School Forest.

Courtesy of National Audubon Society

Wood Thrushes Also Help To Protect Trees

If the school forest land is to be purchased, look about for an area on which there is a stream or pond for recreation, and a grove of older trees, or a young woodland. Forestry is not tree planting alone; it is also the care and development of trees already growing. The bigger the trees in the school forest, the sooner may a timber harvest be expected. As soon as your school has decided to acquire a forest, get in touch with your state extension forester or county Farm Bureau agent. These men can offer excellent advice on the purchase price and choice of forest land.

On January 1, 1947, there were only 265 school forests in New York State. Not 5 per cent of New York schools have school forests. If all schools had school forests, every day could be Arbor and Wild Life Day.

Conservation of Wild Flowers

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Photographs by courtesy of Brooklyn Botanic Garden

Special efforts are necessary to conserve our wild flowers from the invasions of modern life

WE OFTEN HEAR it said that the United States is the richest country in the world; and so it is, in spite of nearly three hundred years of reckless extravagance in using our natural resources. In comparison with the older countries, the United States is much less thickly populated, and has been drawing on its resources for a much shorter time; but even so, far-sighted citizens have come to realize that our resources are not inexhaustible, and that we can not go on indefinitely using them without regard for the future.

We can divide our natural resources into two groups: those that can be replaced and those that can not. If we begin to plan before they are entirely used up, animals and plants and even the fertility of the soil can be renewed. But our minerals can never be replaced; and for all practical purposes, our coal and oil belong in this class too, because they are renewed so very slowly.

For both classes of resources there is need for conservation, but the program is different for the two groups. In either case, we must understand that "to conserve" is not just the same as "to save." Some people have the foolish idea that their most precious possessions should always be saved and never used at all; they think that the best way to be sure of always having money, for example, is never to spend any. But, of course, money is of no use to us if we do not spend it; and it would not do us any good to have tin and gold and coal in the earth if we never used any of it. In conservation we use things, but we use them wisely, in such a way and at such a rate that there will be enough for many future generations and for ourselves.

In other words, the country as a whole must learn to live within its means just as each individual must do. When we go on a week-end camping trip, we do not eat up all our food on the first day and leave none for the second. The good things in the world are ours to use but not ours to use up. We must feel a sense of responsibility for the future; we should use only our fair share and pass on the

Wood Lily

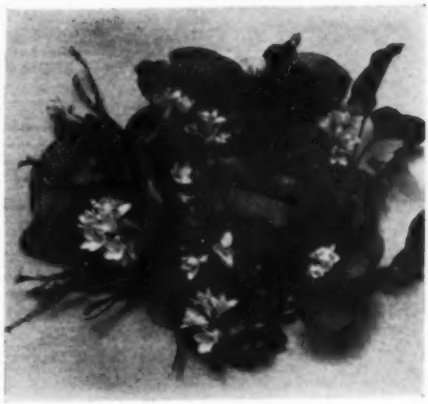
supply in good condition to those that follow us. As John Ruskin has put it: "God has lent us the earth for our life. It belongs as much to those who are to come after us as to us, and we have no right, by anything we do or neglect to do, to involve them in any unnecessary penalties, or to deprive them of the benefit which was in our power to bequeath."

The things that are not replaceable we must learn to use in the most economical way; and we must use them over when this is possible, instead of throwing them away after using them once. During the recent war we saved not only tinfoil but even tin cans; this is just one example of a principle very widely applied.

In the case of the things that are replaceable we must not only avoid all unnecessary waste, but we must definitely plan for their renewal, because their natural methods of replacement are not sufficient to keep up with the rate at which we are using them. We must plant new forests long ahead of the time we are going to need the timber; we must establish sanctuaries for birds and other animals, and for plants, and see to it that they have the right conditions under which to grow and develop and multiply.

Conservation applies not only to the necessary and practically useful things in the world, but to the beautiful and enjoyable things as well. "Man does not live by bread alone." "All work and no play makes Jack a dull boy." If we spend all our thought and energy conserving coal and iron and wood, and wantonly destroy all the beautiful wild flowers, the world will be a poor, bleak place indeed. We need beauty and recreation all the time; and the worse the condition of the world is, the more we need them.

If we do not really use wild flowers, why should they become scarce as indeed they are? There are several reasons. When we cut down the forests we destroy the natural environment in which many of our wild flowers live and without which they can not survive. When we



Trailing Arbutus

build roads and factories and houses, we destroy plants and the places where plants might grow. When we plant crops we remove wild plants, and prevent them from returning. Even in the areas that are left wild, native plants are often destroyed by fire. Fires are sometimes started by lightning, but much oftener by carelessness of people with their cigarets and campfires. Fire destroys the humus in the soil on which the plants depend.

Commercial dealers in wild plants often go to wild places and remove dangerously large quantities of our native plants. They sell these for decoration, for garden plants and for drugs. Especially in the neighborhood of cities, individuals who love wild flowers often gather too many. "Deliver us from our friends," we can imagine the wild flowers saying.

We can see from this that the picking of wild flowers by individuals is by no means the chief cause of their becoming scarce; and similarly, refraining from picking wild flowers by individuals is not the chief remedy for the situation now that it has become bad. It is just one little thing that each of us can do; it is a necessary thing for us to do; but that alone is not enough.

In the case of plants that have already become scarce, we must do something

to help them increase; we must take active steps to encourage them. We must study their natural methods of reproduction and so find out the best way to propagate them artificially; some plants increase best from their underground parts, some from stem cuttings, some from seeds. We must study the environmental conditions under which they grow naturally and give them these same conditions. We should not dig up whole plants of our rare wild flowers to transplant to our gardens unless the land we take them from is to be cleared anyway. Oftener than not we kill the plants we try to transplant.

Fortunately we do not have to refrain from picking all wild flowers. Many of them are so plentiful and spread so fast that we may pick all we want. Others may be picked if we take moderate amounts and pick carefully so as not to tear the whole plant up by the roots, or take all its leaves, or break so many of its branches that it can not recover. But there are some wild flowers which we should never pick at all, either because they are already so scarce, or because it is practically impossible to pick them without destroying the whole plant, or because they are annuals and so must have their flowers left to form seeds for the next year.

It is not very hard to learn which flowers must not be picked. But if we do not know, we can use our judgment according to the following general rule formulated by Dr P. L. Ricker, president of the Wild Flower Preservation Society: No attractive wild flower should be picked for bouquets except the well-known weedy ones, unless there are at least a hundred of them — and then only one flower in ten should be picked. In general, spring flowers growing in the woods need more protection than the summer and fall flowers which grow oftener in the open and spread more easily both by roots and underground stems and by seeds.

Many of the states, including New York, have laws protecting certain wild flowers on public land. These laws do some good, especially in restraining commercial dealers but they are not always easy to enforce, and they do not apply to private land. Most people recognize that the best way to protect wild flowers is to instil a sense of responsibility and pride in all the people.

The New York law forbids the picking or injuring of trailing arbutus (*Epigaea repens*), flowering dogwood (*Cornus florida*), mountain laurel (*Kalmia latifolia*), pink lady's-slipper (*Cypripedium acaule*), the two yellow lady's-slippers (*Cypripedium pubescens* and *Cypripedium parviflorum*), the showy lady's-slipper (*Cypripedium hirsutum*), the fringed gentian (*Gentiana crinita*), the closed gentian (*Gentiana Andrewsii*), the yellow nelumbo or water chinquapin (*Nelumbo lutea*), or ferns of any kind growing on state land or in any public place; or taking away of the hart's-tongue fern (*Phyllitis Scolopendrium*) from any location in Onondaga or Madison counties, or *Cypripedium candidum* from Genesee county. The penalty for violating this law is $50 for each offense.

Here is a summary of what each one of us can do:

Find out which flowers should not be picked — and do not pick them.

Bloodroot

Pink Lady's-slipper

Find out what flowers may be picked, carefully and in moderation, and what ones may be picked freely, and act accordingly.

Take care not to set fires that may destroy wild plants, not to leave sparks in cigarets we drop in the woods, not to leave sparks in fires we make in the woods and not to throw cigarets from cars or buses going through wooded sections.

Refuse to buy rare wild flowers that were taken from the wild. Take pains to be sure that the person offering them for sale has raised them and has really increased instead of diminished their number.

These four things we all can and must do. Further:

Some of us may have an opportunity to use our influence by talking or writing, to induce commercial growers to do more to cultivate and increase wild plants.

Some of us may be able to cultivate wild plants ourselves. The Wild Flower Preservation Society, with headquarters at 3740 Oliver street N. W., Washington, D. C., sells seeds of wild flowers and publishes a list of the ones it has. The society also publishes a monthly magazine called "Wild Flower," which is interesting and helpful.

Some of us may be able to exert our influence by writing to our legislators urging them to vote for proposed laws on conservation when these are good, and urging them to vote against proposed laws when these are bad.

Some of us may have opportunity to use our influence to bring about the setting aside of protected areas in all public parks and an active effort to increase rare wild plants in these protected areas.

The Wild Flower Preservation Society and the Conservation Committee of the Garden Club of America have lists of wild flowers grouped under three headings — those that should not be picked at all (including those protected by law and a number of others), those that may be picked in moderation, and those that may be picked freely. The first group is as follows:

Wild Flowers To Be Protected Everywhere

American holly
Arethusa
Azalea
Bay magnolia
Bloodroot
Bluebells
Cardinal flower
Closed gentian
Dwarf cornel
Flowering dogwood
Fringed gentian
Fringed orchis
Grass pink
Ground pine
Hart's-tongue fern
Jack-in-the-pulpit
Liverleaf
Meadow lily
Mountain laurel
Partridge berry
Pink lady's-slipper
Pipsissewa
Pitcher plant
Rhodora
Round-leaved sundew
Scarlet painted cup
Sea lavender
Shinleaf
Showy lady's-slipper
Showy orchis
Spotted wintergreen
Trailing arbutus
Turk's-cap lily
Wake-robin
Wild columbine
Wood lily
Yellow lady's-slipper

Woodland Recollections

G. H. BAINBRIDGE
Schenectady Bird Club

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Adventures with wild creatures have a special flavor in man's memory

OVER AN EXTENDED period of hiking in the Adirondacks, Catskills and other mountains, and canoeing in some of the lake country of Canada, one is certain to have a variety of experiences which run the gamut of the emotions. A few of the writer's experiences are related here in the hope that if you have not hiked and canoed in the wilderness you may hear the call of the wild, and like Kipling's explorer "Go and look behind the ranges." There is much to enjoy in the simpler things of outdoor life and even greater pleasure and satisfaction in finding them yourself. To those who have looked behind the ranges, the following incidents may arouse recollections of their own adventures.

The Undaunted Singer

If someone were to ask me, "Which is your favorite bird," the answer would be easy — the white-throated sparrow. This drab sparrow likes the mountains. So do I. He is good company, and almost any time of the day or night he is ready to burst forth in song. One writer characterizes his musical effort as very beautiful but melancholy. To me, other birds such as the winter wren and some of the thrushes have more beautiful songs which oft repeated become monotonous. I have yet to grow tired of the song of the white-throated sparrow. Nor has this bird's music ever impressed me as melancholy. Perhaps this characterization has arisen from the minor key in which the song is given. To me the song of the white-throat has a charm and cadence expressive of the undaunted spirit of the bird, the spirit of its wild mountain habitat. Perhaps the following incidents will make this clear.

One day late in October while I was high on Giant mountain in the Adirondacks with the weather providing everything in its line from snow through freezing rain, dense rolling clouds, wind and even a spot of sunshine occasionally, a white-throated sparrow, the only apparent animal life around, sang intermittently. That bird's singing was a real inspiration for the strenuous work on hand that miserable day.

On another occasion, five of us were camping on the ledgy top of Slide mountain in the Catskills. For May 30th, it was very warm, and we somewhat anticipated what later happened by putting heavy rocks on our tent ropes since stakes could not be driven deeply enough to hold safely. After we had crawled in for the night, a thunderstorm broke. For hours the thunder rolled around Wittenberg, Cornell and Slide mountains. Henry Hudson certainly had all his crew out rolling tenpins that night. And with every vivid flash of lightning, a white-throated sparrow undauntedly sang until the storm passed. Except for wondering whether the tent would stay put, we really enjoyed that storm and especially the concert of the small bird that competed with the noise of the tempest.

Again while we were camping on Hunter mountain in the Catskills on a much colder Decoration Day, the white-

Photograph by Arthur A. Allen

"The Undaunted Singer"

throated sparrows seemed to be as glad to see us as we were to see them, for they perched in the scrub near our tent and regardless of the frosty weather sang as long as we were around camp.

Many attempts have been made to represent the charming song of the white-throated sparrow phonetically. Three of these follow:

Sow wheat', Pev'erly, Pev'erly, Pev'erly
Old Sam', Pea'body, Pea'body, Pea'body
Hard-times'-Can'-ada-Can'-ada

Doubtless there are others. In my opinion, these phonetic representations are of help only to the beginner in bird study or to one lacking a musical ear. Certainly such phoneticisms do no justice to the pure flutelike quality of the song of the white-throat. Usually this song is introduced by two long sweet notes, the first of which may be lower in pitch than the second but sometimes the first note is the higher in pitch. It is most interesting to hear two birds singing apparently back and forth to each other, one starting his song with a low pitched note and then going to a note of higher pitch, while the other, apparently answering, starts with a note of high pitch and then goes to a note of lower pitch. On migration, the song is a weak and shortened, but definitely recognizable, version of its breeding season song.

For the pleasure the white-throated sparrow has given, we have been in part able to discharge our indebtedness. While crossing wide water on Lake Lavieille in Algonquin park in Ontario, Canada, it was necessary to take refuge in the lee of a small island because of high winds. Here in the water was an exhausted young white-throated sparrow with his wings spread out flat and just barely able to keep afloat. He was lifted out and put in our coffeepot since it was ventilated at the spout holes and yet dark enough so that he would not thrash around and injure himself. Later, when we reached the mainland, he was fed, photographed by the movie camera and released.

A more unusual bird incident happened during this canoe trip in Algonquin park. While we were broiling a sizable trout over the embers of an open fire on a little island in Lake Clear, three birds flew in and perched close by. A quick look proved that they were crossbills. Reference to the bird guide showed that they were white-winged crossbills — male, female and immature, the first we had ever seen of this species. A telephoto lens was quickly mounted on the movie camera. Just at this time, the male must have decided that, if trout was good for humans, it was also good for birds. At any rate, he flew down to the broiling trout, took a nibble and flew away with the female and immature after him. So quick was the action that the movie film had but few frames to show what happened.

The Fire Light Dance of the Rabbits

One August night at Marcy Brook Dam lean-to (there was only one there then — now there are several), the weather promised to be too chilly for one blanket each. So by a bit of heavy ax work before dark we accumulated what looked like enough firewood to keep us

comfortable during the night. After building a good fire and banking it, we crawled into our blankets. Before long, I was awakened by a dull "kerplunk, kerplunk, kerplunk!" — a sound rapidly repeated. The fire was burning brightly. Rolling over on my back, I rose gradually on my elbows to ascertain the cause of the kerplunking. Believe it or not — I hardly could — several snowshoe rabbits were hopping high and vigorously in a closed path which passed between the fireplace and the front of the lean-to and the kerplunk noise was made by their big hind feet coming down hard on the duff. I wanted my son to see this so that he would know I wasn't yarning when I talked about it, so I carefully awakened him and told him to rise slowly and look. He was as astonished as I. For a long time, I hesitated to tell this incident until strangely enough, I read about almost the same behavior in Seton's Wild Animals at Home. Why do the snowshoe rabbits perform like this? Do they feel safe from foxes while around the fire? Certainly they don't do it to keep warm. Does the light have some hypnotic effect on them? Or is it a game, as the apparent enthusiasm displayed would seem to indicate? Nobody appears to know definitely.

Porcupines also are ubiquitous night prowlers in the remote forests. While we were on a trip in the high peak section of the Adirondacks, the first night in a lean-to having a board floor, sleep was out of the question because of porcupines wandering beneath and gnawing on one thing or another. Pounding on the floor availed nothing except to quiet them temporarily, whereupon the gnawing started again. Came the next evening and much fatigue. What to do to enjoy undisturbed slumber? Came also an idea. In the food supply were smoked, *salted* herring strips. So, about dusk, a few of these were placed in a friction top tin can, the cover firmly secured and the bottom punctured in several places with a nail. The can was then tossed into the woods beyond the clearing around the lean-to. Later, after rolling into our blankets, the noise of the can being pushed around on the rocks soon faded into the distance. Disappointed porkies? Yes, but sweet dreams for us.

A Carolina Wren in the Catskills

OLIVE A. MAC LAURY
Roxbury, N. Y.

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An adventurous Southerner pays a visit to his northern cousins

IT WAS A RAINY afternoon in late September 1946 here in Roxbury. I was watching a small party of migrating warblers flitting about the backyard, when a strange bird darted to the porch railing, paused an instant and flew away. Too large for a warbler — the first brief impression was that of a brown nuthatch, unreasonable as that may seem.

Presently a loud, clear song burst from a neighboring lilac bush. It was raining hard by that time, and before I could get rubbers and raincoat the singer had gone, leaving me to wonder if it could have been a cardinal, familiar to me, but a rare bird in these parts.

Next morning, the song came again — still the suggestion of a cardinal — a persistent, loud, clear ringing voice. But no amount of stalking could locate the singer; he was in a near-by bush — in a tree — on a fence — down by the old barn — everywhere, but invisible — a disembodied voice! Later on, a neighbor told me she heard him singing in the night, though I never did. But he woke me at dawn one morning, singing "Chip! cheer!" "Chip! cheer!" just beneath my window.

This bird chase went on for a week and then, one day, I caught him unawares. He was on the top twig of a brush pile in what I learned, afterward, was his favorite habitat — "a turmoil of weeds, old machinery, tumble-down buildings and general litter" — and he was singing delightfully. A wren, surely, but a big wren, and no wren I had ever seen or heard in thirty or so years of bird watching in New York State. Home to the bird books, and sure enough, it was a Carolina wren. What was he doing at the headwaters of the Delaware river, a bird whose range is described as "Southern New York (rare) southward," etc., and "A few records from central New York?" At any rate, he seemed happy and in no hurry to leave.

In his book, Guide to the Birds of New England and Eastern New York, Ralph Hoffmann says of this songster:

The bird's favorite haunts are brushy tangles. If a male is anywhere about he can hardly be overlooked; he is a constant singer, even in winter, and his song is so loud and clear that it can be heard easily a quarter of a mile away. It consists of short phrases of from two to four notes repeated again and again in a loud clear whistle. These phrases vary greatly; some of the common forms may be written: *Twip'pity, twip'pity; whiddy you', whiddy you', whiddy you'; thrĭ'ou, thrĭ'ou, thrĭ'ou.* Certain phrases suggest notes both of the cardinal and the tufted tit; a beginner should make a careful study of the notes of these three species. The alarm note is a rather smooth *peurr.*

Shortly after I had seen him he disappeared, and was gone for several days. This happened a number of times and always, during these intervals, I would have telephone calls from all over the village, often from people who know little about birds, but marked the loud, arresting song in the customary hush of autumn. Last spring a friend had asked me to identify a bird song while she held her telephone to the garden window of her home, and I could clearly hear a wood thrush singing. She called again one October day, but the wren had flown too soon and I could only assure her of his identity from her description.

He always came back after these excursions, and one happy morning he was on our feeding shelf at the window. This was a brief stay; no other birds were there but he was shy and nervous. Some days later he was there again, this time clinging to the suet rack, with his long tail bent under it at right angles to his body and, although listed as a seed eater, he was pecking at the suet.

About this time a cold snap developed, in what had been an unusually mild fall. It snowed an inch or two and the thermometer went down to 25 degrees. Surely, this would discourage the wren. But no, in a day or two he was back singing as loudly as ever. No doubt he had visited the feeding shelf unobserved for, after the first time, he seemed quite at home although he never was there with any other birds.

The last time we saw him was on November 16th. He was on the shelf in the early morning, looking it over. He flew to the suet, bent his tail, ate for a moment, took wing — and our Carolina wren was gone.

Our general impression of him was that, while sociable, he was shy; while reveling in song, he preferred to sing unobserved, and weather seemed not to affect his spirits at all. Happy and cheerful himself, he made all who heard him happier too, and when he was gone he was genuinely missed.

A Dutch Colonial Garden

JOHN J. VROOMAN
Supervisor of Historic Sites, New York State Education Department

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The Ulster Garden Club cooperates with the State to plant an authentic old-time garden at the Senate House in Kingston

IN OCTOBER OF 1777, almost a century prior to the celebration of America's first Arbor Day, the British attacked and burned the quaint Dutch settlement of Kingston. They burned it so thoroughly that only a scattered few of the sturdy stone houses dotting its narrow streets survived. One of these, the home of Abraham Van Gaasbeek had been lent by him and was at the time, the meeting place of New York State's first popularly elected Senate. Though damaged, the owner repaired it and many years later the State purchased it as one of its most significant historic sites.

Many of old Ulster county's pioneer families have shared with the "Senate House" their heirlooms, furniture and household effects, giving to it an authentic colonial atmosphere. These gifts have answered the problem of interior decoration. But what of the setting? What of its garden? Without this, the Senate House is an unframed picture.

Much time and thought have been devoted to the re-creation of the grounds, for here the visitor receives first and lasting impressions. It is known that the palisades which once completely encircled the settlement followed the brow of the hill, overlooking the valley of the Esopus as does the present Front Street which the Senate House faces. Hence garden space at the front of the house would have been lacking. Then, too, livestock was pastured in the streets in colonial days and a garden before the house would have required a substantial fence to protect its plantings. Houses generally, were built on the street line.

Small plots of land on either side of the Senate House reveal no sign of a garden, yet it seems a safe conclusion these areas and the space at the rear were cultivated. A European elm, a tree unlike its neighbors in kind and far greater in size, stands beside the house. Could it be that this was the "family tree," planted by the builder beside his newly completed home after the manner of the Dutch, to be nurtured and revered by succeeding generations? If so, then here is surely the last living, deeply rooted link connecting the property with Kingston's colorful past.

Descriptions of contemporary gardens indicate that one befitting the Senate House would not be overly large and would be devoted chiefly to flowers, with a compact little herb garden adjoining. Fruit and shade trees were planted to best advantage where the resultant shade and impoverishment of the soil would not be a detriment. The greater gardens from which the household drew its food supplies were outside the stockade, on its "bouwerie" or farm. Around the home lot, within the stockade, every square foot of land must serve a useful purpose; order, thrift and careful husbandry were obsessions.

As handwriting reveals the character of the individual, so does a garden reveal

the characteristics of the gardener. This was, invariably, the woman of the house. Therefore, we may know this garden was neatly tended. And it was from women — tradeswomen of the town — that these gardeners bought their seeds. Mrs Grant, a Scottish woman who spent many years in Albany, writes this of her Dutch friends:

The care of plants, such as needed particular care or skill to rear them, was the female province. Every one in town or country had a garden. Into this garden no foot of man intruded after it was dug in the spring. . . A woman in very easy circumstances and abundantly gentle in form and manners would sow and plant and rake incessantly.

With these things in mind, the Ulster Garden Club (women of the Kingston area) in cooperation with state officials have planned and indeed begun the planting of a garden in keeping with these traditions, making only certain conces-

Photograph by John J. Vrooman

"This Old Dutch House Will Rest More Peacefully"

sions to meet present altered conditions affecting plant growth. Van der Donck, a Netherlander visiting in 1655 wrote of what he observed as did other travelers of a later period, leaving lists of plants in common use.

The problem at the Senate House was to select those answering essential requirements as to size, color, time of blooming, hardiness and rapidity of growth. Poplars and willows (both used in colonial times) are not to be compared over the years with the slower growing hard maples, oaks and locust. The latter species, known as the "home tree," has been a favorite from earliest times and was selected for planting at the Senate House. Aged locusts or their second and third generations are to be seen clustered about the homes of our early settlers. Sir William Johnson used them at Fort Johnson in 1749; their seedlings still grow there. He used them again at Johnson Hall. Colonel Nicholas Herkimer made use of them on his farm in 1764. A beautiful locust stood at the entrance door of Knox's Headquarters, but a dangerous trunk cavity together with a swarm of honey bees that appropriated it as a storehouse, made necessary its removal.

Certain of the native evergreens, mostly hemlocks, were used at the Senate House to screen out an unsightly brick wall. Opposite this, along a line fence, under maple shade, rhododendrons have been planted to blot out incongruous buildings. Lilacs will be lavishly used; they have long been favorites. They lined the walks, filled odd corners with color, shaded the springhouse and perfumed the kitchen as breezes carried their scent through the open upper half of the old Dutch door. Sir William Johnson planted them in a circle and is said to have negotiated Indian treaties within his flower-laden bower.

Many other native American trees and shrubs have been selected for planting. Among them are the redbud, the smoke tree, the fringe tree, the red cedar, mock orange, winterberry, mountain laurel, spice bush, snowberry and cranberry bush.

Of the flowers there was a great variety but the roses did not figure prominently among them. There were gillyflowers (the carnation is a cultivated variety), tulips, lilies (red, white and yellow), violets, marigolds, and great golden sunflowers planted not alone for their bloom but for the value of their seeds. Also listed are the snapdragons, lupines, sweet peas, coxcombs and gladiolus. Here, among the flowers, Van der Donck lists the dogwood which would have been new to him and must have impressed him with the rare beauty of its bloom. Specimens of this have been planted at the Senate House. Peonies, as old as Pliny, often bordered the walks. They are hardy, bloom in sun or shade, are less subject to disease and blight and to injury by the more troublesome insects. They too, have been used with the phlox, the hollyhocks, Canada lilies, violets, tulips, periwinkle and other old-time favorites which will bloom again at the Senate House.

The herb garden was cultivated for its flavorings and seasonings and for use medically. One might have found there such plants as aconite, belladonna, catnip, caraway, castor bean, dandelion, foxglove, gentian, horseradish, mint, mustard, red pepper, sarsaparilla, thyme, wintergreen and mint. As a class, the herbs have not been extensively used at the Senate House but the mints (spearmint and peppermint), thyme, sage and possibly a few others will be found.

Such a garden as is planned is not to be attained in a season nor in a modest succession of them. But as time goes on, this old Dutch house will rest more peacefully in its bed of flowers and shrubs whose branches nod against its roughened walls; flowering vines will cling fondly to it and there will always fall upon it the partial shade of sturdy trees.

Guides to the Out-of-Doors

DOROTHY A. TREAT
Editor, School Nature League, National Audubon Society

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School Nature League helps children learn the fun of exploring the world of nature

ONE OF THE most important discoveries any child can make is that it is fun to explore the natural world about him — the fields, woods, ponds, shores, even his own backyard — to see for himself. Such discovery not only provides the child with an endless source of interest and wonder — his through life — but leads him to an appreciation of his natural heritage, his country's wildlife and other natural resources. Arbor and Wild Life Day can well be dedicated to a renewed determination on the part of each teacher that during the ensuing year he will make opportunity for the children in his class to learn at firsthand something of the natural world of which they are a part. The School Nature League Bulletins described in this article are a practical guide to such endeavor.

It was to provide children, isolated by the bricks and pavements of New York City, with a chance to know something of the out-of-doors that in the early nineteen hundreds, a group of young women, graduates of Hunter College, New York City, started a series of flower shows in public schools of the crowded districts of the city. These shows were really nature exhibits for they included far more than flowers. Natural objects from near-by fields and woodlands were displayed and collections of rocks and minerals, aquariums and terrariums. Much of the material was *living*. Neighboring schools were invited to visit. These shows were so successful that it was decided to make them permanent.

With the motto, "A Nature Room in Every School," School Nature League was organized in 1917 and the *first* nature room in New York City was established in a public school in the heart of the congested lower east side. A dark, dingy, ground floor room was transformed into a place of enchantment to the children of that squalid neighborhood. Teachers in the school borrowed plants and animals from the nature room for study in their own classrooms. From the beginning, School Nature League stressed the importance in nature study of *real* objects, alive whenever possible.

In 1927 the American Museum of Natural History in New York City invited School Nature League to make its headquarters there. A *model* nature room was established and during the next 15 years thousands of children and teachers received instruction in this room, where plants and animals, living as nearly as possible in natural environments, made a never-failing appeal to visitors young and old. Not only could teachers visit the room but they were invited to borrow materials for display in their own schools.

Whenever teachers and principals were interested, and a vacant schoolroom — preferably a sunny one — could be found, a visiting teacher from School Nature League went to the school to help set up a nature room and to organize committees of interested children, each to assume care of some exhibit. Drawings and charts for the room would be made by various classrooms; clippings and often very interest-

Courtesy of School Nature League

Aquariums Demonstrate Interrelations of Plants and Animals

ing specimens would be contributed by the children. With tables substituted for fixed seats and desks, and a long low shelf for plants by the windows, the nature room soon took on a fascinating appearance. It became a laboratory and workshop and, like the manual training room and domestic science room, was a place where children learned by seeing and doing.

It soon became apparent, however, that some source material was needed to aid the teacher in developing lessons to go with the nature room. To fill this need, School Nature League began publishing its Nature Bulletins. Informative, attractively illustrated, simply and interestingly written, these bulletins provided an authoritative introduction and practical guide to all phases of nature study. Four years ago, School Nature League became a part of the National Audubon Society. The nature bulletins now not only serve the New York City schools but are subscribed to by teachers in every state and in many parts of Canada.

One very useful bulletin, The Elementary School Science Room, explains how to set up a school nature room and make it function. Other bulletins on nature exhibits offer practical helps in setting up a terrarium or a fresh water aquarium as well as how to select and care for plants in the classroom. Many bulletins deal with various kinds of plant and animal life. School Nature League Bulletins place emphasis on how plants and animals live rather than on how they look, and in so doing point out the interdependence of all plant and animal life. All animals depend on plants for food, for only plants can synthesize food from raw materials.

Plants need the carbon dioxide exhaled by animals for use in their food making. Plants require certain conditions of soil and climate in order to grow. Soil in order to be good growing soil must have been lived in by generations of plants and animals. Climatic factors are affected by plants. Plant roots make holes in the ground. Many animals make holes in the ground. These holes admit air and allow rain water to permeate the soil instead of running off the top. This give and take relationship between the plants, animals, soil and climate of an environment is like a closely woven fabric. An understanding of this interrelationship is basic to intelligent conservation practices.

A number of School Nature League Bulletins deal directly with conservation matters and will be of particular interest in connection with Arbor and Wild Life Day programs. Such are A Tree and the Forest, by Arthur B. Williams of the Cleveland Museum of Natural History; Plants as Makers of Soil, by Paul B. Sears, professor of botany, Oberlin College, and author of Deserts on the March; The Story of the Ground Water Table, by J. N. "Ding" Darling; Conservation for Everybody, by Robert Cushman Murphy of the American Museum of Natural History.

"No matter how little or how much we do with nature in our schools, our homes, our community and national organizations," writes Marie Gaudette of the Girl Scouts in the bulletin, Things To Do in Nature. "The one thing we can not afford to lose sight of is opportunity to help ourselves and others see the value of conservation in relation to our own human lives. To conserve . . . means acceptance of the fact that all forms of life—the snake, the bird, the toad, the earthworm, the bat, the deer, and so on, have their rightful place in the scheme of nature. Destroy the natural enemy of any form of life and it soon turns out that man has destroyed the thing he tried to save."

School Nature League Bulletins are sold at cost and may be obtained from the National Audubon Society, 1000 Fifth avenue, New York 28, N. Y. A list of all bulletins available will be sent on request.

Wild Flower Plates Are Available

The New York State Museum still has available a considerable stock of sets of the 264 colored plates from the two volumes of Wild Flowers of New York, in loose-leaf portfolio form. Each plate bears the common and scientific name of the plant illustrated, and there is an index to the common names of the 364 wild flowers figured. These plates, including the margin, measure 9 by 12 inches. They are on thin paper which would require mounting for class use. They are available only in complete sets.

Each portfolio weighs five pounds, and is sold for $2.50, postage additional. Those wishing to purchase a set should make a check or money order payable to the New York State Education Department, and mail to the New York State Museum, Albany 1, New York.

Hawks Aloft

MAURICE BROUN
Curator, Hawk Mountain Sanctuary

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HOW WOULD YOU like to see 400, or even 4000 hawks in a single day? Impossible, you think!

Well, there are a number of places in the northeastern States where large numbers of hawks may be seen, in the proper seasons. Let me tell you about a sanctuary for hawks and eagles — perhaps the first of its kind in the world. This sanctuary covers more than two square miles of rugged wilderness atop Hawk mountain, near the little village of Drehersville, in the east-central part of Pennsylvania. Strange as it may seem, scores upon scores of birds of prey may be seen here almost any day during the late summer and fall; in fact, when weather and wind conditions are favorable, the sky literally pours hawks, as it did one day in September 1938, when 4078 hawks were counted and no one knows how many passed uncounted! In ten weeks as many as 22,557 hawks and 147 eagles (including many of the supposedly rare golden eagles) have been counted at this sanctuary.

Hawk mountain was not always a sanctuary. For many years, up to 1934 when the sanctuary was created, many irresponsible, ignorant hunters gathered here to blast the birds out of the skies, just "for fun." Often the slaughter was terrific. If you could visit this spot now, you would be amazed at the colorful throngs of outdoor enthusiasts, thousands of them — hunters with binoculars and cameras — enjoying the unique pageant of hawks aloft. People get a big thrill just watching the hawks, 15 kinds of them, winging boldly, and gracefully, and confidently past the "lookouts" on the mountain, a thousand feet above the valley floor.

Field glass hunters throng to a great spectacle at the endless mountain called Kittatinny Ridge

Yes, your eyes would open wide with wonder at the sight of all those birds: the trim, jaunty little sparrow hawks dashing by at express-train speed; red-tailed hawks scudding low, or soaring high, a regular procession of them, sometimes ten at a time, often floating gracefully within shotgun range of the observers; ospreys sailing along with bent wings, often in pairs; sharp-shinned hawks swooping nervously just above the treetops; marsh hawks and red-shouldered hawks drifting and floating like the autumn leaves you see carried aloft by the wind. Most exciting of all, you may see a great bald eagle, its white head glistening in the bright sun, steering its seven-foot wings almost over the cliff's "lookout" before it glides off toward the south.

By the merest accident it was discovered years ago that one of the most important of several routes taken by our native hawks in their migrations south is along the Kittatinny ridge, which sprawls across five states. At Hawk mountain — a spur of this ridge — the hawks concentrate in their passage because the ridge narrows to a virtual bottleneck. This ridge has been a flyway for all kinds of birds from time immemorial, but it is "made to order" for the hawks because the updraft of powerful air currents at the top of the mountain carries the birds along with effortless ease, on the same principle as

a motorless glider. Indeed, glider planes on more than one occasion have followed the same course as the drifting hawks. In 1937 an expert soaring pilot guided his high-performance sailplane on the updrafts the length of Kittatinny ridge for 160 miles, from Ellenville, New York, to a point near Harrisburg.

So a multitude of hawks, utilizing Nature's own forces, glide along this ridge south to their regular winter quarters. Some pull up in the southern Appalachians, others continue to the Gulf States and still others, like the broad-winged hawks, travel as far as Brazil and Peru.

The Kittatinny ridge — an Indian name meaning "endless mountain" — begins in southeastern New York (west of Poughkeepsie), where it is better known as Shawangunk mountain. Many naturalists and bird students have sought out favorable spots to observe the hawks along this northern terminus of the ancestral hawkway. The eastern Canadian Provinces, the Adirondacks and the Catskill mountains, and western New England provide the huge reservoir from which come all the hawks. But just how the migrating hawks from these areas connect up with the great ridge flight is not clearly understood.

If you live close to a natural flyway for birds, or in the vicinity of a low, southwest trending ridge, you may have the good luck to see spectacular numbers of migrating hawks, either in the spring or fall, provided you keep very alert. Your observations may shed much light on the mysterious movements of these fascinating travelers of the skies. If you see any large numbers of hawks be sure to write to the New York State Museum, telling approximately how many birds were seen, on what date, the general weather and wind conditions, and most important, the direction in which the birds were flying.

Some bird students each fall see between three and four thousand hawks passing south over Van Courtland Park in Brooklyn! These hawks, however, evidently have no relationship to the inland, or ridge flyways. They may come down the Hudson river or over Long Island sound, and are headed for the coast of New Jersey, another major flyway for enormous numbers of northeastern birds of prey. Still other hawks, in large, concentrated flocks are observed from time to time in the lake region of central New York. George Ruby, formerly of Syracuse, has told of a marvelous movement of over 2000 broadwings which he witnessed at the east end of Oneida lake, going toward the southwest in the early morning of September 14, 1936.

Nearly 40 of the 48 states now have laws protecting all or a part of the hawks within their borders. In New York only the three bird-eating species — the goshawk, sharp-shinned and Cooper's hawks — and the turkey vulture are not protected by law. Even so, there are often flagrant violations of the law, by persons who are ill-informed as to the identity and habits of the various species. Since it is quite difficult to learn to distinguish the different hawks, law-abiding citizens should refrain entirely from hawk shooting.

Of course, the hawks are predatory creatures, but open-minded people realize that most animals, including man, live by killing. To condemn anything merely because it kills is not justified. Unfortunately, a few hawks prey upon certain food animals which man considers strictly his property, such as poultry and game birds, and so all the hawks, until recent years, had a bad reputation. Birds of prey feed mainly on meadow mice, rats, rabbits and squirrels. Such rodents cause far more damage to a farmer's crops and poultry than do the rare raids that an occasional hawk makes on his barnyard.

During the past fifty years a vast amount of scientific research has thrown a spotlight on the tremendous economic benefit of the hawks. Trained conservationists all over the country have long

agitated for hawk protection. This is reflected in the steadily improving state laws concerning these birds and a more enlightened attitude on the part of the general public. And let us not forget that Hawk Mountain Sanctuary in Pennsylvania has been a significant object lesson in behalf of our birds of prey.

If you are not already aware of the beauty and usefulness of our native hawks, go to your public library and examine carefully Dr John B. May's excellent book, Hawks of North America, with its accurate, authentic information, food habits studies and beautiful color plates. Or send 5 cents to the Superintendent of Documents, Washington, D. C., for Circular No. 370 entitled Food Habits of Common Hawks, compiled by the United States Department of Agriculture.

If you want to read the fascinating story of Hawk Mountain Sanctuary, write to Mrs C. N. Edge, 767 Lexington avenue, New York 21, N. Y., asking for Publication No. 3, and inclose ten cents.

Requirements of a Bird Sanctuary

MRS EDWARD H. HICKMAN

Formerly President, Federated Garden Clubs of New York State

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Protect your bird friends and they will protect your garden

THE CREATION of a bird sanctuary, where birds may be reasonably safe from the attacks of their natural enemies and live and nest in security, is sure to have a most beneficial influence on any community.

In the spring and summer, birds not only sing over every acre that we cultivate, they also probe lawns for worms, search trees for grubs or harmful insects, skim through the air for gnats and flies, and consume large quantities of weed seeds. The winter birds keep just as busy, feeding upon the larvae and eggs of insects hidden in the bark of trees and bushes. If, therefore, you wish to keep your garden free from insect pests and weeds you should encourage as many birds as possible to come there as regular boarders.

The woodland edges shelter far more birds than the deeper woods, while open spaces, dotted or bounded with berry-bearing trees and shrubs, support still greater numbers.

Trees, shrubbery, vine thickets, ground cover, feeding devices, nesting boxes, bathing pools and fences constitute important elements of sanctuary equipment. These play their part in attracting birds and influencing them to stay where they are safe from their enemies.

After heavy snow, or sleet storms, which render natural food supplies inaccessible, the food stations should be provided with suet for insect-eating birds and bread crumbs and seed for the seed-eaters. To prevent larger birds and squirrels from monopolizing the suet, it should be placed in wire mesh holders.

As they are erected for shelter and nesting purposes, birdhouses should be constructed properly and set up intelligently. The United States Department of Agriculture and the National Association of Audubon Societies in New York City, issue bulletins giving all the necessary instructions for making and placing boxes for nesting.

Short pieces of string, yarn, raveled hemp rope, chicken feathers, horsehair, bits of rags and cotton placed in conspicuous places will be eagerly seized at nesting time when the birds are hunting for building material.

Some of the plant material which gives interest and beauty to a bird sanctuary and provides food, shelter and nesting places for the birds follows:

Trees and shrubs: beeches, birches, buckthorn, cedars, cherries, chokeberries, crabapples, dogwoods, hackberry, hawthorns, junipers, larches, mountain ash, mulberry, oleaster, pines, sassafras, sour gum, winterberry, barberries, bayberry, cornelian cherry, cotoneasters, red osier dogwood, elderberry, huckleberry, spicebush, sumac and viburnums.

Vines: bittersweet, blackberry, Boston ivy, climbing rose, euonymus, green brier, honeysuckle, raspberry, sweet brier, trumpet vine, Virginia creeper and wild grape.

Low plants: False Solomon's-seal, partridge berry, wintergreen and ferns, grain and wild sunflowers.

Photograph by C. E. Simmons

Young Marsh Hawks in a Safe Nest

Acknowledgment

This Arbor and Wild Life Day number of the BULLETIN TO THE SCHOOLS was compiled with the cooperation of the New York State Museum. The editor desires to express his appreciation to Dr Carl E. Guthe, Director of the State Museum; to Alvin G. Whitney, Assistant Director, and to all who contributed articles and photographs.

Forestry in Action

E. W. LITTLEFIELD

Superintendent of Forest Investigations, New York State Conservation Department

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Practising what it preaches in forestry, the State is providing in its state forests 350 outdoor workshops where wasteland and old woodlots are being converted into productive areas

OVER AT THE Harvard Forest in Petersham, Massachusetts, there is a large hall, around the sides of which are built a series of models, or exhibits, after the fashion of the ones you may see in our State Museum at Albany, or at the American Museum of Natural History in New York. There are miniature trees, roads, ponds and other figures in front, merging into a painted background showing sky and hills in the distance. The whole affair is so cleverly constructed that you can not tell, except by looking closely, where the real objects end and the painting begins.

Instead of showing wild animals, or birds, or Indians, however, the Harvard Forest Models tell us, step by step, how the original forests in eastern North America were cleared by the settlers until the hills were bare of trees and nearly

Courtesy of New York State Conservation Department

Reforestation on the Sand Plains, Black River Valley

all the land was in field and pasture. But after a few generations there were not so many people in the hills where the land was not especially good for farming. Fields were left unplowed and there were not enough cows to keep the pasture browsed down.

Whenever these conditions occurred, seedling trees began coming up, first around the edges of the old fields, and then farther out, till what had been a cornfield or a cow pasture began to look like a young woods again, with pine and birch at first and then sturdier trees like oak, and maple, and ash. By the time the story ends we see the lumbermen cutting down a 60-year-old pine forest on one of these fields and trucks hauling the logs away. The maples and other hardwoods are shown sprouting up after the pine, to produce a forest that is going to be very much the same as the one the settlers started to clear back in 1700 (except that the trees won't ever have a chance, under civilization, to get as big as those first ones). Like so many of the things man does, we have gone around the circle and arrived about where we started.

When you see a hillside planted with pine trees, as you travel around New York, remember the story of the Harvard Forest Models and you'll see where these plantations fit into the picture. Right here in New York there are between four and five million acres of old farm lands that aren't doing much of anything except wash down into the creek every time there is a heavy rain, or produce a scrub growth of brush and thornapple. The planting of pine trees soon makes these lands productive again, and the soil, instead of wearing out, will build up year by year, forming that layer of rich, black, loose, moisture-holding substance that we call *humus*.

Now, humus does not look like anything especially valuable — just good, black dirt, you'll say. But without the presence of that dark-colored material in which the roots are nourished, the whole

Photograph by C. E. Simmons

Healthy Trees Improve Land Values

plant world, including our forests, our gardens and the farmers' crops, would eventually wither away. Humus is one thing on earth for which there is no substitute; and, when we plant trees on these old, worn-out farm lands, we are not only creating a forest, but we are setting in motion a "humus factory" that (if we do not interfere too much) will keep on producing forever.

Why do we always plant pines, or their close relatives, the spruces, firs and larches: in other words, conifers? Why not set out maple or oak, or perhaps basswood — species which seem to be growing so well on the woodlots just over the fence? The answer is, that an old field is a "pioneer" environment — one in which living conditions are difficult — and it takes "pioneer" tree species to survive. Conifers are adapted by nature for struggling against all kinds of hardships. They will endure weather of an arctic character. They will get along on a frugal diet from the soil, demanding almost nothing in the way of nitrogen, or potash, or calcium, without which the broad-leaved trees would starve. Their water requirements are not high, either, and such water as they do take up from the soil is held tightly in thin, hard-surfaced needlelike leaves. Though these needles stay on all winter, their water-conducting tissues are well insulated from the outdoors, and as an extra precaution they actually bunch together for mutual protection when the weather gets rough. In their early years the conifers are more robust and competitive than the broad-leaved seedlings, or hardwoods, and grow fast enough to get above the grass before it chokes them out.

Just as it was the hardier individuals who first settled our continent and surmounted the rigors of the pioneer life, so the conifers are the ones we have to depend upon for starting forests on these wind-blown hilltops. Like the early colonial settlements, however, a community of young pine trees is monotonously uniform, simple in its organization and lacking in the complexity that makes the mature forest (or the fully developed society) so varied and interesting. But, as the pines take over the land, a change begins to take place in the whole environment. The sod dies out and is replaced by a mat of fallen needles, below which you will find that dark, moist stratum of decaying vegetation which is the forerunner of the "humus layer." Here and there among the pines, an ash or a maple is coming up, protected from drouth and winter winds. Not all the pines live, and where they die out the hardwoods appear in the openings as by magic. More and more, this new forest community is assuming the features of the mixed woodland which it will eventually become. Deer, rabbits, birds and other kinds of wildlife find these thickets just the place to go for shelter from the wind and from their enemies. To be sure, there isn't much food there, but they can venture out into the neighboring woods or fields when they get hungry.

All over New York State, outside of the Adirondack and Catskill Parks, forests like these — nearly 350 of them — are growing up under the guiding hand of the State Conservation Department. Some of the planted trees are nearly 20 years old now, and big enough to start for the pulp mill or the box factory, or to make fence posts, if they are given treatment to prevent decay. Thousands of them have already gone to the Christmas tree market, for we find it pays to take out some of them early, before the plantation gets too crowded.

These state forests are not all made up of plantations. When the Conservation Department bought the land, about half of it was already covered with natural woods of some kind, for these lands were mostly abandoned farms, and like the average hill farm in New York they included woodlots. Many of these woodlots

were badly run down as a result of cutting off too many trees, or cutting the wrong ones, or letting cattle graze in the woods. One of the jobs the State has to do is to improve these run-down woodlots by fencing them against cattle, cutting out some of the poorer trees, or the ones that are too old, in order to give the younger and more vigorous trees a chance. Surprisingly enough, these trees that we take out can be sold for making various kinds of wood fiber or for other uses, so that they pay back the cost of the operation. This is a gigantic task, improving all these plantations and woodlots, for they cover nearly half a million acres, in units that vary in size from 500 to 6000 acres. What makes this work possible is the Post-War Planning Fund, which Governor Dewey established during the war, so that returning veterans who wanted outdoor work could be given wholesome, constructive employment when they returned to their home communities. All over the State these projects are going on and the wood is finding its way to the industrial plants which are so badly in need of this raw material.

War is a ruthless thing, and it has not spared our forests. Wood, and still more wood, was the cry from our armed forces, for nearly four years, to make everything from ship timbers to airplanes, and from packing crates to blueprint paper. The privately owned woodlands of New York — ten million acres of them — did not shirk their war duty. The massive oaks of the Hudson valley, the graceful pines of the Lake George country, the spruce of the Adirondacks, the maple, the birch, the basswood, all fell before the ax and the power-chain saw, at a rate never before equalled. Many such woodlands were cut clean, and will not produce timber again in our lifetime. Others were cut under plans recommended by foresters of the Conservation Department and the United States Forest Service, so that a good reserve stock of trees was left in the woods.

For a number of years, owners of woodlands and others interested in forest conservation have felt that "we ought to have a law" to prevent the destructive cutting of the forests. In 1946 the New York Legislature passed a law known as the "Forest Practice Act" which was signed by Governor Dewey just a year ago. This is not the kind of law that most people think about when the word "law" is mentioned. It does not send policemen into the woods to see how the trees are being cut, nor does it propose to send anyone to jail for cutting the wrong trees. Instead, it provides for sending foresters into the woodlands of any owner who is interested in practising forestry. These foresters, employed by the Conservation Department, but responsible, also, to groups of local forest owners known as District Forest Practice Boards, will go over the owner's woods with him and explain what practices are best to follow in his particular case. Before they get through, a plan of management will be drawn up, which is calculated to give the owner the best returns from his woods and at the same time keep them productive; a plan that will prevent the cutting of half-grown trees, that will fence the woods against browsing cattle, that along with cutting some of the good, merchantable timber, will eliminate the crooked trees, the defective and diseased ones; a plan, in short that will harvest the products of the forest without destroying the forest itself.

This is what forestry really means. It is not enough to plant tree seedlings on wasteland, or to fight forest fires, essential as these activities are. Forestry, in its true sense, means to plan the growing and harvesting of timber on all our millions of wooded acres, in such a way that every acre will produce the things needed by mankind — whether it be lumber for building homes, or pulp on which the news of the world is printed — to the limits of its natural capacity.

The Sumacs of New York State

WILLIAM M. HARLOW
New York State College of Forestry

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Nature is prodigal with the sumac but man needs to know which varieties are friendly

THE SUMACS (sumachs, "shumacs") comprise one of the most interesting and colorful groups of woody plants native to the northeastern states. Even casual inspection shows that the various species may be arranged in two subgroups, (1) the nonpoisonous ones with *red* fruit and (2) those with poison canals and *white* or whitish fruit.

Nonpoisonous; fruit RED

Staghorn sumac
Rhus typhina
Smooth sumac
Rhus glabra
Flameleaf sumac (dwarf sumac)
Rhus copallina
Fragrant sumac
Rhus aromatica

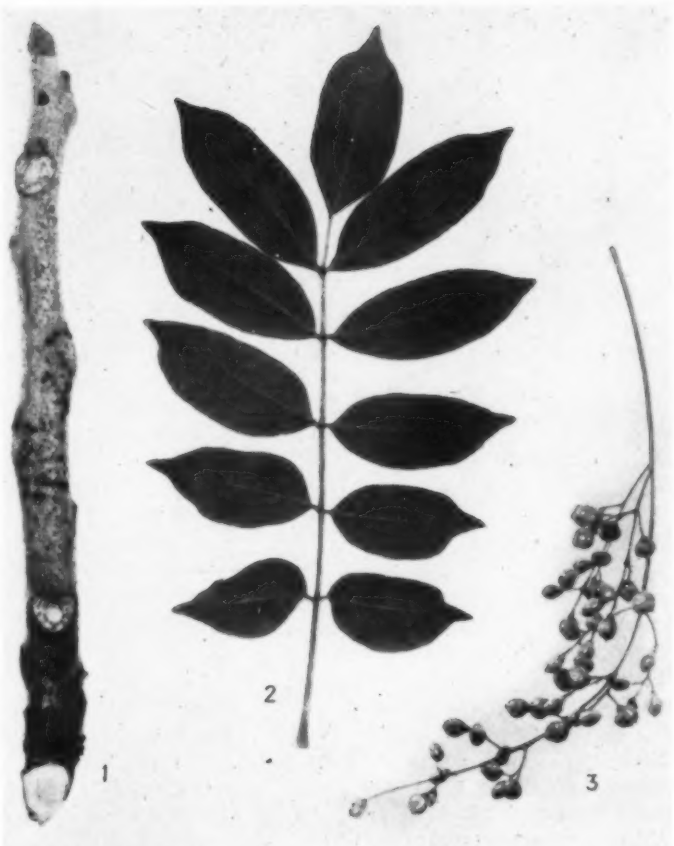
Poisonous; fruit WHITE

Poison ivy
Toxicodendron radicans
Poison sumac
Toxicodendron vernix

Staghorn sumac is without doubt the most widespread and common sumac in New York State. In winter its stout, densely hairy twigs remind one of a stag's horns in the velvet, hence presumably the name. Although the bark contains tannins which have been used for tanning leather, rabbits persistently gnaw during the winter at the base of the stout stems. The following spring these barked stems sometimes show how deep the snow has been. The leaves are compound with many (11–31) toothed leaflets, silvery beneath. When the leaves, twigs or bark are cut, there exudes a milky sap. Few woody plants found in New York State are thus milky. The flowers of staghorn sumac are small and relatively inconspicuous, but so many are borne together that the resulting cone-shaped mass is easily seen at some distance. The flowers mature into small fruits each of which bears a hard-coated seed covered with fleshy glandular hairs containing a mixture of fruit acids, among which is the malic acid of sour apples. One may partially overcome thirst on a hot day by sucking out the sour juice and discarding the seeds, or a good drink may be prepared by crushing the fruit masses and straining the juice which is then diluted with water and sweetened. The heartwood of this sumac is a handsome greenish yellow and although the tree is usually less than four inches in diameter, small pieces of wood may be obtained for turning with a lathe or for inlay work.

Smooth sumac, as its name indicates, lacks the hair found on the twigs and leaves of the preceding species. Furthermore, the small fruits are borne in more open clusters and have extremely short glandular hairs. Except for these differences, the two species are similar.

Flameleaf sumac, or dwarf sumac, is usually shrubby (less than 20 feet in height). The leaves are smaller than those of the first two sumacs, and have a peculiarity which distinguishes them immediately from those of other compound-leaved species in this State. Between each pair of leaflets, the midrib bears on either side a winglike extension. This feature together with the red fruits look-



[*From Textbook of Dendrology by Harlow and Harrar: Courtesy McGraw-Hill Book Co.*]

Poison Sumac

(1) Twig x 1½ (2) Leaf x ¼ (3) Fruit x ½

ing like those of the smooth sumac, makes flameleaf sumac an interesting ornamental shrub. The glossy leaves turn dark red in autumn.

To the uninitiated, the fragrant sumac, especially when not in fruit, is often mistaken for poison ivy. Its leaves consist of three leaflets which differ but little in shape from those of the poisonous species. One day I was scrambling along the steep shore of Canandaigua lake and nearly fell upon a patch of a three-leaflet, low shrub which looked very much like poison ivy. I stopped, looked suspiciously at the plant and finally with two sticks broke off a leaf and gingerly sniffed it. I detected at once the aromatic, almost geranium-like odor of the crushed leaf, and then noticed the few relatively large *red* fruits scattered among the green foliage. This, then, was not poison ivy, but the attractive fragrant sumac which is sometimes planted as an ornamental shrub.

A great deal could be written about the two remaining species. A bulletin, "Poison Ivy and Poison Sumac," by the

Photograph by William M. Harlow

"A Word to the Wise—"

author of this article, may be obtained from Extension Department, State College of Forestry, Syracuse, N. Y. The familiar jingle "Leaflets three, quickly flee; berries white, poisonous sight" should enable anyone to identify poison ivy. Most people unfamiliar with the out-of-doors, however, seldom *see* much until they have trained their powers of observation. It is one thing to detect three leaflets when a piece of white paper is held behind the leaf and quite another to recognize such leaves when they occur massed together or scattered in with other plants. The accompanying picture shows this. How many "leaflets three" can you see in the picture? And yet here is an almost 100 per cent "stand" of poison ivy, a poor place to sit down!

Most people know that poison ivy is a vine which may creep up trees or over old fences. It may also be shrubby where repeatedly cut, as along rights of way, and often extends itself close to the ground through tall grass with only an occasional leaf growing erect from the almost hidden woody twig.

Contrary to the deep-seated prejudices of thousands of people, you can not contract poison ivy dermatitis by walking *near* the plant (unless you get the smoke from its burning), or even by actually *touching* it gently.

The poison does not "drool" from the leaves. It is contained in special canals scattered plentifully through the inner tissues of leaves and stem. To release the poison, the tissues must be *cut, bruised* or *crushed*. Of course a leaf can easily be bruised, and even the effort required to pick it from the twig may be sufficient to cause some of the sticky resinous fluid to ooze out. Most unexplained instances of poisoning can be traced to contaminated shoes. The victim walks through grass, inadvertently crushes one or more hidden leaves of the offending plant, and then gets the poison on his hands when he removes his shoes. Since the skin on the palms of the hands is relatively thick, poisoning there rarely occurs, but the hands soon transfer the poison to other more sensitive areas of the body. Yet more important is the fact that such contaminated shoes may retain the active poison for a year or more, and each time they are handled they may cause another case of "dermatitis."

Poison sumac, like poison ivy, is not a true sumac. It apparently has the same poisonous principle but fortunately, it grows in swamps where few people visit. It is a large shrub or small tree with compound leaves, and smooth (not toothed) leaflet margins. The midrib of the leaf is *reddish* and the leaflets are attached so that there is a dihedral angle between the two rows. The whitish fruit is borne in loose open clusters some of which remain in evidence during the winter. Much to their sorrow, people sometimes bring in the brilliant scarlet autumn leaves for house decoration.

Thoreau once said that the fruits or seeds of many trees "had wings, even those of the cherry." Birds not only eat the seeds of the red sumacs but also those of poison ivy and poison sumac. This accounts for the wide distribution of these colorful species.

Canada Geese

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